

# Study Guide

For use with pages 484–490

**GOAL** Find the circumference of a circle.

## VOCABULARY

A **circle** is the set of all points in a plane that are the same distance from a point called the **center**. The **radius**,  $r$ , is the distance from the center to any point on the circle. The distance across the circle through its center is the **diameter**,  $d$ . The distance around a circle is called the **circumference**,  $C$ . The ratio of any circle's circumference to its diameter is always  $\pi$ , or **pi**. You can use 3.14 or  $\frac{22}{7}$  to approximate  $\pi$ .

*Circumference of a Circle:*

**Words**

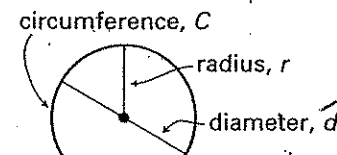
Circumference =  $\pi \cdot \text{diameter}$

Circumference =  $2 \cdot \pi \cdot \text{radius}$

**Algebra**

$C = \pi d$

$C = 2\pi r$



*Chord that passes through center of circle*

*Chord - distance whose endpoints are on the circle*

## EXAMPLE 1 Finding the Circumference of a Circle

The diameter of a bicycle tire is 24 inches. About how far will the tire go in one rotation? Round your answer to the nearest inch.

**Solution**

The distance that the bicycle tire goes in one rotation is equal to the circumference of the tire.

$$C = \pi d$$

Write the formula for the circumference of a circle.

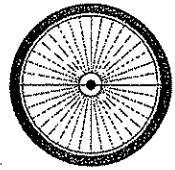
$$\approx (3.14)(24)$$

Substitute 3.14 for  $\pi$  and 24 for  $d$ .

$$= 75.36$$

Simplify.

**Answer:** The bicycle tire will go about 75 inches in one rotation.

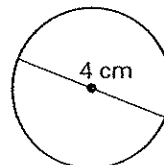


$d = 24 \text{ in.}$

## Exercises for Example 1

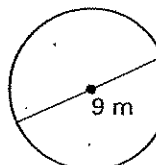
Find the circumference of the circle.

1.



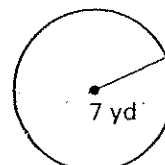
$$\begin{aligned} C &= \pi \cdot d \\ &= 3.14 \cdot 4 \\ &= 12.56 \text{ cm} \end{aligned}$$

2.



$$\begin{aligned} C &= \pi \cdot d \\ C &= 3.14 \times 9 \\ &= 28.26 \text{ m} \end{aligned}$$

3.



$$\begin{aligned} C &= 3.14 \times 2(7) \\ &= 3.14 \times 14 \\ &= 43.96 \text{ yd} \end{aligned}$$